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SCIENCE

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COAST SURVEY PARTIES IN ALASKA.

THE United States Coast and Geodetic Survey Office has received a telegram from their sub-office in San Francisco, Cal., giving the information that an agent of the Alaska Commercial Company had arrived by the last steamer from St. Paul, Alaska, bringing mail from the Coast and Geodetic Survey parties who have been engaged in making explorations and surveys on and near the 141st meridian of longitude (the boundary between Alaska and the British possessions). These two parties were commanded by Messrs. J. E. McGrath and J. H. Turner, assistants of the Coast and Geodetic Survey. The party under Mr. McGrath ascended the Yukon River to the boundary-line, and there made its headquarters, while that headed by Mr. Turner went up the Porcupine River to the Rampart House (the Hudson Bay Company's trading-post in the vicinity of the boundary), and there camped for the further prosecution of their work. Both parties were at their posts early in the autumn of 1889; and with the provisions which they carried with them, and those which were to be forwarded by the Alaska Commercial Company's steamer, they would have been provided with an ample quantity for fully fifteen months: but the loss of the steamer "Arctic" in 1889, and with it a portion of the provisions on which they relied, did not leave much margin for "high living" in Mr. McGrath's party; but, as he states, "we might have had to test the virtue of a very spare diet only for two unexpected resources that turned up. The first was a great crop of turnips that Mr. McQuesten, agent of the Alaska Commercial Company, raised at the store on Forty-Mile Creek during the summer: it was the first time he had made a garden there. The second was a greater number of deer crossing the trails they have between the Tan'a-nah' and the Yukon Rivers (these trails intersect the valley of Forty-Mile Creek) than was ever before known by white men, and a corresponding abundance of fresh meat."

Mr. McGrath's party, however, remained at their post, and accomplished all the work which a very stormy, although not as cold as had been expected, season permitted.

The records made comprise a set of magnetic and of meteorological observations for a year; a set of specimens of sediments obtained from filtering certain measured quantities of the water of the Yukon River, made at regular intervals; certain botanical specimens; and a series of photographs. Mr. McGrath also gathered considerable information from some of the most intelligent of the Indians which he encountered at Forty-Mile Trading-Post, and had them make for him lists of all the Indians from Fort Yukon to Big Lake on the White River, and from the Tan'a-nah' to the tributaries of the Porcupine. These were drawn up in tallies, and arranged according to families. These he turned over

to Mr. Greenfield (one of Mr. Petroff's deputies); and, as some of the tribes had not been reached by Mr. Greenfield, it was of much service to him in making the census enumeration.

Owing to the stormy weather, Mr. McGrath was unable to obtain a sufficient number of astronomical observations to justify him in returning this fall; and his party will therefore remain until next spring, and then descend the river, doing what work they can in the cause of science on their way down.

Mr. Turner's party were much more favored by the weather than the other party. They completed the necessary astronomical observations for the determination of the geographical position of their station on the Porcupine River at the boundary-line, also a set of magnetic and meteorological observations, and made a topographic map (on a scale of 1:5000) of the river in the vicinity of their camp, and a survey (on a scale of 1:200000) from the boundary to Fort Yukon, a distance of about one hundred miles.

A small scheme of triangulation was undertaken to locate three monuments placed to mark the boundary-line. An exploring expedition was sent during the months of March and April to explore the line northward to the Arctic Ocean. The party visited Herschel Island. During May another trip was made about forty miles to the southward, as far as Salmon Trout River.

Mr. Turner reports that the Hudson Bay Company have this summer moved their quarters to a site within the British domain.

Mr. Turner reached St. Michael's Aug. 30, 1890, with his party, too late to catch the steamer coming south. The party will winter there, and in the spring carry the triangulation toward the mouth of the Yukon River, until relieved by orders from the Coast and Geodetic Survey Office.

Both gentlemen speak in their reports of the uniform and untiring zeal which has been displayed by the officers and men in their parties; and, from this standpoint, it seems as if the subordinates have only tried to emulate their chiefs.

THE LATEST RESULTS OF ORIENTAL ARCHÆOLOGY.¹

A YEAR ago (*Science*, Dec. 13, 1889) I gave a short account of the startling archaeological discoveries which had just been made in Arabia. The explorations of Doughty, Euting, Huber, and, above all, Glaser, the inscriptions they had found, and the historical facts disclosed by the decipherment of the epigraphic material, have thrown a sudden and unexpected flood of light on a continent which has hitherto been darker even than Central Africa. The members of the last Oriental Congress heard with astonishment that a country

¹ From *The Contemporary Review*.

which had been supposed to be little more than a waste of sand and rock, inhabited by wandering nomads, and first appearing on the page of history in the time of Mohammed, had really been a centre of light and culture in remote ages,—a land of active trade and commerce, which once exercised an important influence on the civilized world of the ancient East, and possessed an alphabetic system of writing earlier, it would seem, than that which we know as the Phœnician alphabet.

I was able to give only a brief outline of the results that had been announced by scholars in the new field of research. A large portion of the inscriptions on which they were based had not been published, and the work promised by Dr. Glaser, on the ancient geography of Arabia, had not appeared.¹ Moreover, there had not yet been time for the special students of Arabian history and epigraphy to criticise the conclusions at which scholars like Professor D. H. Müller or Dr. Glaser had arrived.²

A year has passed, and we have now had time to take a sober review of the new discoveries, and examine their weak points. In one respect the history of ancient Arabia which I laid before the readers of the *Contemporary Review* must be modified. Professor D. H. Müller was too hasty in ascribing an early date to the inscriptions of Lihhyān in northern Arabia. Instead of belonging to the tenth, or even the seventh, century before our era, it is now evident that they are not earlier than the fall of the Roman Empire. They are strongly influenced by the religious ideas and technical terms of Judaism, and belong to the period when Jewish colonies and Jewish proselytism were rapidly extending through Arabia. The kingdom of Lihhyān rose and decayed at no long interval of time before the birth of Mohammed.

On the other hand, further study has gone to confirm Dr. Glaser's view of the great antiquity of the Minæan kingdom, and of the spread of its power from the south of Arabia to the frontiers of Egypt and Palestine. There can be no doubt that it preceded the rise of the kingdom of Saba, the Sheba of the Old Testament. There was no room for the contemporaneous existence of the two monarchies. Geographically they covered the same area; and the cities of Saba were embedded, as it were, within the territory of Ma'in. But the Sabæan cities flourished at the expense of those of Ma'in, and later tradition forgot even the names of the old Minæan towns.

The kingdom of Saba was already flourishing when Tiglath-Pileser and Sargon ruled over Assyria, in the eighth century B.C. And not only was it flourishing: its power had extended far to the north, where the Assyrian monarchs came into contact with its king. The visit of the Queen of Sheba to Solomon carries back the foundation of the Sabæan monarchy to a still earlier date. Unless we are to suppose that the visit is the invention of a later writer, we must conclude that nearly ten centuries before the Christian era Saba had already superseded Ma'in; and that the old kingdom, with its trade and culture, its fortified cities and inscribed walls, had already passed away. The fact would explain why it is that classical writers know only of a Minæan people, not of a Minæan kingdom; and that even in the pages of the Old Testament, while references occur to Sheba, only a careful search can detect the name of Ma'in.

¹ Dr. Glaser's large and learned volume on the ancient geography of Arabia has now been published (*Skizze der Geschichte und Geographie Arabiens*, vol. II., Berlin, Weidmann), and contains a wealth of information on subjects like the site of Ophir, or the geographical knowledge of Ptolemy.

² *Skizze der Geschichte Arabiens*, Part I. (Munich, Straub).

Dr. Glaser has shown that the "kings" of Saba were preceded by the Makârib, or "high priests" of Saba. Here, as in other parts of the Semitic world, the priest-king was the predecessor of the merely secular king. The State was originally regarded as a theocracy, and it was some time before the priest and the king became separated from one another. We are reminded of the history of Israel, as well as of Jethro, the "priest of Midian." As in Assyria, where there were "high priests of Assur" before there were "kings of Assyria," the State was represented by a deity whose name it bore, or who derived his name from the State. Saba, like Assur, must once have been a god.

We are already acquainted with the names of thirty-three Minæan sovereigns. Three of them have been found by Professor Müller in inscriptions from the neighborhood of Teima, the Tema of the Old Testament, in northern Arabia, on the road to Damascus and Sinai. Their authority, therefore, was not confined to the original seat of Minæan power in the south, but was felt throughout the length of the Arabian peninsula. The fact is confirmed by an interesting inscription copied by Halévy in southern Arabia, which has been deciphered by Professor Hommel and Dr. Glaser. It tells us that it was engraved by its authors in gratitude for their rescue by Athtar and other deities "from the war which took place between the ruler of the land of the south and the ruler of the land of the north," as well as "from the midst of Egypt (*Mitsr*) in the conflict which took place between Madhi and Egypt," and for their safe restoration to their own city of Qarnu. The authors of the inscription, Ammi-tsadiq and Sa'd, further state that they lived under the Minæan king, Abi-yada' Yathi', and that they were "the two governors of Tsar and Ashur and the farther bank of the river."

Professor Hommel has pointed out that in Ashur we have an explanation of the Asshurim of the Bible, who are called the sons of Dedan (Gen. xxv. 3, 18); while Tsar must be a fortress often mentioned on the Egyptian monuments as guarding the approach to Egypt, on what would now be the Arabian side of the Suez Canal. Madhi Dr. Glaser would identify with Mizzah the grandson of Esau (Gen. xxxvi. 17), but the other references in the inscription are obscure. It proves, however, that the power of the Minæan princes was acknowledged as far as the borders of Egypt, in what Professor Hommel believes to have been the age of the Hyksos. That their authority was recognized in Edom is shown by an inscription in which mention is made of Gaza.

It would thus appear that Palestine, or at all events the tribes immediately surrounding it, were in close contact with a civilized power which had established trade-routes from the south, and protected them from the attacks of the nomad Bedouin. The part now performed, or supposed to be performed, by Turkey, was performed before the days of Solomon by the princes and merchants of Ma'in. A conclusion of unexpected interest follows this discovery. The Minæans were a literary people: they used an alphabetic system of writing, and set up their inscriptions, not only in their southern homes, but also in their colonies in the north. If their records really mount back to the age now claimed for them,—and it is difficult to see where counter-arguments are to come from,—they will be far older than the oldest known inscription in Phœnician letters. Instead of deriving the Minæan alphabet from the Phœnician, we must derive the Phœnician alphabet from the Minæan, or from one of the Arabian alphabets of which the Minæan was the mother; in-

stead of seeking in Phoenicia the primitive home of the alphabets of our modern world, we shall have to look for it in Arabia. Canon Isaac Taylor, in his "History of the Alphabet," had already found himself compelled by palaeographic evidence to assign a much earlier date to the alphabet of South Arabia than that which had previously been ascribed to it, and the discoveries of Glaser and Hommel show that he was right.

As soon as we reverse the problem, and assume that the Phœnician alphabet is later instead of earlier than the Minæan, we obtain an explanation of much that has hitherto been puzzling. The names given to many of the Phœnician letters are at last found to agree with the forms of the latter. It is only in the South Arabian alphabets, for instance, that the letter called *pē* ("the mouth"), our *P*, has the form of a mouth, or that the first letter, *aleph* ("an ox"), really resembles the head of that animal. Moreover, we can now understand how it is that the South Arabian alphabets possess letters which do not occur in the Phœnician alphabet, and are not derived from any of the Phœnician characters. The Phœnician language had lost certain sounds which comparative philology has shown belonged to the Semitic parent-speech, and which were preserved in the languages of Arabia. That these sounds should have been represented by special symbols in the Arabian alphabets, if the latter had been borrowed from the defective alphabet of Phœnicia, is unintelligible: in such a case the symbols would have been modifications of other symbols already existing in the alphabet, or else the same symbol would have been allowed to express more than one sound. This has actually happened in Hebrew, where the same symbols stand respectively for *'ain* and *ghain*, for *s* and *sh*. There can be but one explanation of the fact that the Arabian alphabets denote by independent symbols certain sounds which had been lost in Phœnician pronunciation. The Arabian alphabets are more primitive than the alphabet of Phœnicia. When the latter first comes before us, it is in a comparatively late and conventionalized form, widely removed from the hieratic characters of Egypt, out of which it is commonly supposed to have been developed.

The discovery of the antiquity of writing among the populations of Arabia cannot fail to influence the views that have been current of late years in regard to the earlier history of the Old Testament. We have hitherto taken it for granted that the tribes to whom the Israelites were related were illiterate nomads, and that in Midian or Edom the invaders of Palestine would have had no opportunity of making acquaintance with books and written records. Before the time of Samuel and David it has been strenuously maintained that letters were unknown in Israel; but such assumptions must now be considerably modified. The ancient Oriental world, even in northern Arabia, was a far more literary one than we have been accustomed to imagine; and as for Canaan, the country in which the Israelites settled, fought, and intermarried, we now have evidence that education was carried in it to a surprisingly high point. In the principal cities of Palestine an active literary correspondence was not only carried on, but was maintained by means of a foreign language and an extremely complicated script. There must have been plenty of schools and teachers, as well as of pupils and books.

The latest revelation that has been furnished to us by the tablets of Tel-el-Amarna relates to Jerusalem. Among the tablets now in the Museum of Berlin, five have been found which prove, upon examination, to have been letters sent from the King or Governor of Jerusalem to the Egyptian

sovereigns in the century before the exodus. The governor in question was named Abdi-dhaba, or Ebed-tob as his name would have been written in Hebrew. He describes himself as occupying a more independent position than the governors of most of the other towns of Palestine. They were merely Egyptian officials. He, on the other hand, though he owned allegiance to the Egyptian monarch, nevertheless claims to have derived his power from "the oracle of the mighty king." As one of the letters shows that this "mighty king" was not the king of Egypt, but a deity, we are irresistibly reminded of Melchizedek, the king of Salem, and priest of "the most high God," from whom, therefore, the king derived his authority. Last spring I had already recognized the name of "Urusalim," or "Jerusalem," in one of the Tel-el-Amarna tablets at Cairo, and one of those which I copied in the collection of M. Bouriant tells us what was the local name of the "most high God." The tablet is unfortunately broken; but on one side of it we read, "The city of the mountain of Jerusalem, the city of the temple of the god Uras, (whose) name (there is) Marru, the city of the king which adjoins (?) the locality of the men of Keilah." Marru seems to be the same word as the Aramaic *marē* ("lord"). He was identified with the Babylonian Uras, and his temple stood on "the mountain" which was called Moriah, perhaps in remembrance of the god. Long before the days when Solomon built the temple of Yahveh the spot on which it stood had been the site of a hallowed sanctuary.

The tablets at Berlin refer to transactions which had taken place between Addi-dhaba and the "Kassi" or Babylonians; and in one of them an oracle of the god of Jerusalem is quoted which declared, that, "so long as a ship crosses the sea,—this (is) the oracle of the mighty king,—so long shall the conquests continue of Nahrima and the Babylonians." Since Nahrima is the Aram-Naharaim of the Old Testament, light is thrown on the account which is given us in the Book of Judges of the eight-years' occupation of southern Palestine by the king of that country. In Chushan-rishathaim we must see a successor of the princes whose conquests were proclaimed by the oracle on Moriah. It was an anticipation of the career which Balaam predicted for "the Star of Jacob."

Light is also thrown on a statement of the Egyptian historian Manetho, which it has been the fashion to treat with scant respect. He tells us that when the Hyksos were expelled from Egypt they built Jerusalem as a defence; not against the Egyptians, as would naturally be expected, but against "the Assyrians." In the age of Manetho, "Assyrians" and "Babylonians" were synonymous terms.

But though it is to the tablets of Tel-el-Amarna that we must look for light upon the history of the Canaan which the tribes of Israel invaded, it is rather from the monumental records of ancient Arabia that we may expect to draw our chiefest illustrations of the inner life and belief of the invading tribes themselves. One of these illustrations has already been indicated by Professor Hommel.¹ In one of the Arabian inscriptions discovered by Euting we find the word *lau'dān* used in the sense of "priests." The word is etymologically the same as the Hebrew Levi; and when we remember that Jethro, the priest of Midian, watched, as it were, over the birth of the Israelitish priesthood, and had as his son-in-law the Levite Moses, there opens out for us, as Professor Hommel remarks, "a new and unexpected perspective in the history of religion."

A. H. SAYCE.

¹ Aufsätze und Abhandlungen zur Kunde der Sprachen, Literaturen und der Geschichte des vorderen Orients, Munich.